

CLAIM AMENDMENTS

This listing of claims will replace all prior versions and listings of claims in the application:

1. (currently amended) A patterning transfer element comprising a polymer gel, ~~which~~ where the polymer gel comprises a crosslinked HEMA copolymer, and a crosslinking agent and where the patterning transfer element has surface features that are elevated portions or recessed portions so as to allow for the patterning of biological materials by the patterning transfer element.

2. (currently amended) A contact mask comprising a polymer gel and having holes or cavities with a cross-sectional area of from approximately 1 μm^2 to approximately 2 mm^2 .

3. (currently amended) The ~~polymer gel~~ contact mask of claim 2 wherein the polymer gel is a hydrogel.

4. (currently amended) The ~~polymer gel~~ contact mask of claim 3 wherein the hydrogel comprises polymer chains of polyHEMA.

5. (currently amended) The ~~polymer gel~~ contact mask of claim 4 wherein the polymer chains are a homopolymer of HEMA crosslinked with a crosslinking agent.

6. (currently amended) The ~~polymer gel~~ contact mask of claim 5 wherein the crosslinking agent is a diacrylate or polyacrylate.

7. (currently amended) The ~~polymer gel~~ contact mask of claim 4 wherein the polymer chains are co-polymers of HEMA, a hydrophobic monomer and, optionally, a crosslinking agent.

8. (currently amended) The ~~polymer gel~~ contact mask of claim 4 wherein the polymer chains are block co-polymers of HEMA and a biodegradable polymer.

9. (currently amended) The ~~polymer gel~~ contact mask of claim 3 wherein the hydrogel is formed by polymerization of a polymer precursor composition comprising one or more

chemically distinct monomer compounds and a crosslinking agent wherein the crosslinking agent is present in an amount of about 1 mole percent to about 5 mole percent with respect to the total monomer compound content.

10-12. canceled

13. (currently amended) The contact mask of claim 10 ~~2~~ wherein the contact mask ranges from approximately 5 μ m to approximately 3 mm in thickness.

14. (currently amended) The contact mask of claim 10 ~~2~~ wherein the polymer gel is selected from the group consisting of polyphosphazenes; polyacrylates; polymethacrylates, poly(ethylene glycol), poly(ethylene glycol) acrylates, poly(vinyl alcohol), polyethylene glycol methacrylates, 2-(trimethoxysilyloxy)ethyl methacrylate, trimethoxysilyloxy alkyl methacrylate, trimethoxy silyl alkyl methacrylate, polyvinylpyrrolidinone and carbohydrate-based hydrogel polymers, heparin, heparin sulfate, hyaluronic acid, polylactic acid, polybutadienes, hydrogels, and combinations thereof.

15. (currently amended) The ~~polymer-gel~~ contact mask of claim 10 ~~2~~ formed by complementary molding.

16-52. Canceled

53. (currently amended) A hydrogel contact mask where the hydrogel comprises polymer chains of polyHEMA and the polymer chains are co-polymers of HEMA, a hydrophobic monomer and, optionally, a crosslinking agent and where the contact mask has surface features that are elevated portions or recessed portions so as to allow for the patterning of biological materials by the contact mask.

54. (currently amended) A hydrogel contact mask wherein the hydrogel comprises polymer chains of polyHEMA and the polymer chains are block co-polymers of HEMA and a biodegradable polymer and where the contact mask has surface features that are elevated portions or recessed portions so as to allow for the patterning of biological materials by the contact mask.

55. (currently amended) The ~~polymer gel~~ contact mask of claim 2 wherein the polymer gel is a hydrogel or polyelectrolyte gel.

56. (currently amended) A patterning transfer element comprising a polymer gel ~~for patterning biological materials~~ where the polymer gel comprises a HEMA copolymer and where the patterning transfer element has surface features that are elevated portions or recessed portions so as to allow for the patterning of biological materials by the patterning transfer element.

57. (currently amended) A ~~polymer gel~~ contact mask comprising a polymer gel wherein the polymer gel comprises a HEMA copolymer and where the contact mask has surface features that are elevated portions or recessed portions so as to allow for the patterning of biological materials by the contact mask.

58. (previously presented) The contact mask of claim 57 comprising at least one hole therethrough.

59. (previously presented) The contact mask of claim 2 wherein the mask is located on an inanimate substrate.

60. (previously presented) The patterning transfer element of claim 1 wherein the patterning transfer element is a stamp.

61. (previously presented) The patterning transfer element of claim 1 wherein the patterning transfer element is applied to an inanimate substrate.

62. (previously presented) The patterning transfer element of claim 1 wherein the patterning transfer element conforms to a surface of a substrate upon contact with the surface.

63. (previously presented) The contact mask of claim 2 wherein the mask is in conformal contact with a surface upon which the mask is located to provide a seal between the mask and the surface.

64. canceled

65. (previously presented) The contact mask of claim 63 wherein the surface is the surface of a culture dish for culturing cells.

66. (previously presented) The contact mask of claim 64 wherein the surface is the surface of a culture dish for culturing cells.

67. (new) A contact mask comprising a polymer gel with a surface having a pattern of cavities complementary to an ordered array of posts in a half mold used to produce the contact mask.

68. (new) The contact mask of claim 67 wherein there are cells in the cavities.

69. (new) The contact mask of claim 68 wherein cells are not adhering to the surface of the contact mask.

70. (new) A contact mask having a top and a bottom surface comprising a pattern of cavities in both the top and bottom surfaces where the cavities in the top surface are complementary to an ordered array of posts in a first half mold used to produce the contact mask and where the cavities in the bottom surface are complementary to an ordered array of posts in a second half mold used to produce the contact mask.